

PABLO

NARRATIVE REPORT

January-December 1966

PABLO NATIONAL WILDLIFE REFUGE
NARRATIVE REPORT
January 1, 1966 to January 1, 1967

REFUGE PERSONNEL

Joseph P. Mazzoni, Refuge Manager, Moiese, Montana
Frank L. Kenney, Refuge Manager, Charlo, Montana

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF SPORT FISHERIES AND WILDLIFE
FISH AND WILDLIFE SERVICE
Charlo, Montana

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PABLO NATIONAL WILDLIFE REFUGE
Narrative Report

January 1, 1966 to January 1, 1967

I. GENERAL

A. Weather Conditions

Temperature and precipitation are recorded at Ninepipe Refuge, 10 airline miles south. The ice in Pablo reservoir did not begin to break up until almost the first of April. The freeze-up came again in early November making a total of about 125 days in which the refuge was not useable by waterfowl in 1966.

B. Habitat Conditions

1. Water

Pablo reservoir began the year with a pool elevation of 3205, fifteen feet higher than normal. Added to this, was a good reserve supply in Tabor, Mission and McDonald Lake reservoirs. (See the diagram of water sources)

However, irrigation needs during a dry summer and an extremely dry fall, placed such a demand on the reservoir that it had to be completely drained. This of course destroyed the trout fishery and drastically reduced the warm water species. It also caused most of the waterfowl to move to other waters making the public hunting area near the refuge almost useless.

Chronologically, the reservoir's history for 1966 was as follows:

January to April.....	Ice-covered
May through July.....	High water levels
August through September...	Rapid shrinkage of surface due to draw-down
October through November	Extremely low (3183.0 mark)
December.....	Return to ice cover

2. Food and Cover

The 480 acres of upland provide excellent habitat for pheasants and some species of waterfowl. The dense cover of quackgrass is only lightly grazed by the 70 head of cattle pasturing it each summer. Ample growth is left for early spring nesting concealment. Willow, caragana, Russian olive and wild plum shelter patches are well distributed over the area.

The wheat farming operations adjacent to the refuge on private lands, BIA lands and the 350 acres farmed on shares for the Montana Fish and Game department, are of great value in providing browse for waterfowl in the spring and fall, and mature grain during the winter.

Throughout the spring and early summer of 1966, the water levels remained high and fairly stable, and a heavy growth of aquatic plants flourished. But, unlike Ninepipe, these plants did not thrive on the lower levels when the water receded.

As the water was drained out of the reservoir, the larger fish tried to escape down the outlet ditch. The smaller fish became concentrated in the shallow muddy pools attracting hundreds of Common and Hooded Mergansers.

This severe draw-down, of course, discouraged most waterfowl. The resident flock of Canada geese, however, found young forbes to browse on and security from the Hunter's guns on the widening shores of the reservoir.

II. WILDLIFE

A. Migratory Birds.

1. Whistling Swans On March 28, a migratory flock of 110 was seen flying over Pablo. In the fall, between the middle of October to the middle of November, up to 30 could be seen using the refuge..

2. Canada Geese A pair again nested on the artificial island. This island has produced a brood each year since it was built in 1958, or seven broods. After the first brood left the island, a second pair tried to nest, but was apparently unsuccessful. Only two immature geese were banded during the June banding operation when 87 flightless birds were captured.

3. Snow and White-fronted goose-use was very limited. Only one Snow Goose was known to have used the refuge in May. Ten White-fronts were recorded on the refuge in October.

4. Ducks Low water conditions plus an early freeze-up brought the total duck use of the refuge down considerably. Mallards used the refuge more than all the other species combined. Below is a list of the seven most commonly found ducks on the refuge and the percentage of the total days-use of each:

Mallards.....	57%
Widgeon.....	14%
Redhead.....	7%
Pintail.....	7%
C. Merganser.....	6%

Green-winged Teal.....3%
 Blue-winged Teal.....3%
 Ring-necked.....2%
 Others.....1%*

* Includes: Shoveler, Wood, Canvasback, Scaup, Goldeneye, Buffle-head, Ruddy and Hooded Merganser.

Nesting was highly successful with the hatch up 60% from last year. Mallards and blue-winged teal were the most ambitious producers. Others hatching smaller numbers included pintail, widgeon, redhead, shoveler, canvasback and gadwall.

5. Coot nested in moderate numbers on the refuge and a peak number of 1,000 was recorded in the fall.

6. Water and Marsh Birds Of this group, only the Great Blue Heron stayed through the winter. The Common Loons, the Red-necked, Eared and Western Grebes and the Double-crested Cormorant all arrived in late April and were gone by early November. An unusual, lone, Sandhill Crane showed up November 1, again this year.

B. Upland Game Birds

1. Ring-necked Pheasants nest, reach their peak numbers during the summer months, and then rapidly diminish during the fall and winter. The Montana Fish and Game department released 100 banded cocks near the refuge, a large proportion of which were soon in hunters' bags.

2. Mourning Doves visit the refuge intermittently in small numbers.

C. Big Game

Nothing to report.

D. Furbearers, Predators and Other Mammals

Two colonies of Beaver were active as long as the water stayed up. Their fate, after the draw-down, is unknown. Muskrat and mink populations are moderate, but Weasel tracks are frequently seen in the new snow. The Meadow and Deer Mouse populations are probably kept in check by the Striped Skunks and Badgers along with some of the aerial predators of the area.

E. Hawks, Eagles, Owls, Magpies, Crows and Ravens

Rough-legged Hawks were seen with unusual frequency late in the fall. Less common were the one or two Duck Hawks always perched on the outer middle level of the cottonwoods. Both Bald and Golden Eagles showed up for their annual feast of crippled ducks. The golden eagles found slim pickings, but the bald eagles remained to feed on the stranded fish, along with numerous Magpies and a few Ravens.

F. Other Birds

Over a thousand Ring-billed Gulls fed on carcasses of dead fish after the water was drained out of the reservoir. In early November a flock of 30 Snow Buntings was seen feeding on the lichens of the riprap.

G. Fish

Since no natural spawning takes place, each spring thousands of fingerling Rainbows are released from the Montana Fish and Game hatchery at Arlee. These fish grow rapidly on the bottom fauna of crustaceans, insects and smaller rough fish becoming 2-to-3 pound trout within two years. But this year, this fishery was completely destroyed when the reservoir was drained. The state fishery biologist has indicated that he may not stock it again with trout, but will allow it to return to a Bass and Yellow Perch fishery.

H. Reptiles

Painted Box Turtles were frequently seen.

I. Disease

Nothing to report.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development

The large, log maintenance building, constructed in 1937 has been completely removed and the area where it stood cleaned up.

B. Maintenance

Routine fence repairs, posting and clean-up was carried on during the year.

C. Plantings

None to report.

D. Collections and Receipts

None

E. Control of Vegetation

In an effort to bring the Canada Thistle infestation at Pablo under control, 180 acres were treated with herbicide, using

the new boom-mounted, trailer sprayer. On the areas treated, an almost complete initial kill was accomplished. However, some badly infested areas along the west side were isolated by high water and could not be reached. These will be given special attention during the coming year.

F. Fires

None

G. Miscellaneous

Plans for a fishermen's parking area have been formulated. The site selected is near the inlet spillway, a favorite fishing spot for both trout and perch fishermen.

IV. RESOURCE MANAGEMENT

A. Grazing

Each year, between the 1st and 15th of May, permittee Frank Webster turns his 70 head of cattle into the south portion of the refuge. This unit, comprising about 180 acres, is usually blocked off from the west side of the upland by a grain farmer's fence which cuts into the refuge and bisects an inlet. Rather than cross this flooded inlet, the cattle move in the other direction to the east side, then northward below the main dike to the north side where they spend the rest of the summer. Here, the inlet channel prevents the cattle from getting to the west side. Because of these physical barriers, the west side, the best grassland on the refuge, goes virtually untouched year after year.

One solution is to prevail upon the permittee to wait until the annual lowering of the water level, then drive the cattle around the same way they'd come and across the inlet into the west pasture.

A better solution, which has already been suggested to the Bureau of Indian Affairs grazing manager, is to move the offending fence to the west side of the channel leaving room between it and the highwater line for the cattle to pass around the end of the inlet. (See Map)

B. Haying

None

C. Fur Harvest

Due to low water levels, the Indian trapper has trapped only the inlet canal. His catch, here, is unknown, but would be a negligible amount of muskrat at most.

D. Commercial Fishing

None

V. FIELD INVESTIGATIONS AND APPLIED RESEARCH

A. Census

In addition to the weekly waterfowl population surveys, a thorough waterfowl brood count was made throughout the spring and early summer. With the help of Lee Hotchkiss, student assistant from the Bison Range, much valuable information was gained on the nesting waterfowl of the area.

B. Banding

On June 22, 87 flightless geese were driven into a trap and banded. Only two of these were immature. Ten had been banded in previous years. On September 22, using the cannon net, 130 mallards and 30 pintail were caught and banded. For simplification the costs of this operation are combined with those reported in the Ninepipe report.

VI. PUBLIC RELATIONS

A. Recreational Uses

Fishing Of the 3,500 visitors on Pablo, in 1966, 2,500 were fishermen. A few were ice fishermen, others caught bullheads and yellow perch, but the majority were there to spin a cast for the big rainbows that feed near the inlet when the water in the reservoir starts to drop.

In order to allow fishermen to legally take the doomed fish trapped in the outlet canal after the complete draw-down of the reservoir, an emergency opening was put into effect. Hundreds of trout, bass, perch and bullheads became food, in this manner, instead of waste.

Previously, Pablo was open to fishing along the northeast shoreline from July 15 until February 28, excluding the waterfowl hunting season. Recently proposed fishing regulations would change this allowing fishing, in the same area, all year except during the waterfowl hunting season. Included in the new changes, are special regulations pertaining to ice fishing to protect the basic purpose of the refuge as well as provide safe-guards for the fishermen, themselves.

B. Refuge Visitors

See Ninepipe Narrative Report.

C. Refuge Participation

See Ninepipe Narrative Report.

D. Hunting

With the reservoir conditions such as they were, only a handful of hunters used the pits early in the season. No geese were killed from the state-operated pits after October 9. By the first of November, practically all hunting ceased on the public hunting area.

E. Violations

None that we were aware of.

SIGNATURE PAGE

Submitted by:

Mr L Henry
(Signature)

Refuge Manager
(Title)

Date: January 27, 1967

Approved, Regional Office:

FEB 24 1967

*du
v6*

Date: _____

John D. Findlay
(Signature)

John D. Findlay
Associate Regional Director

(Title)

Approved, National Bison Range:

Date: January 27, 1967

Joseph P. Maggini
(Signature)

Refuge Manager
(Title)

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Form NR

(Rev. March 1953)

WATER FOWL

REFUGE

Pablo

MONTHS OF January

TORY

April

19 66

		(2)									
		Weeks of reporting period									
(1)		1	2	3	4	5	6	7	8	9	10
Swans:											
	Whistling										
	Trumpeter										
Geese:											
	Canada										
	Cackling										
	Brant										
	White-fronted										
	Snow										
	Blue										
	Other										
Ducks:											
	Mallard										
	Black										
	Gadwall										
	Baldpate										
	Pintail										
	Green-winged teal										
	Blue-winged teal										
	Cinnamon teal										
	Shoveler										
	Wood										
	Redhead										
	Ring-necked										
	Canvasback										
	Scaup										
	Goldeneye										
	Bufflehead										
	Ruddy										
	Other										
Coot:											

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Cont. 1
(Rev. March 1953)WATERFOWL
(Continuation Sheet)REFUGE PabloMONTHS OF January THRU April, 19 66

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total	
	11	12	13	14	15	16	17	18			
Swans:											
Whistling			110						770		
Trumpeter											
Geese:											
Canada			4	10	20	20	20		518		
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other											
Ducks:											
Mallard		250	2,500	2,500	1,000	1,000	1,000		57,750		
Black											
Gadwall				50	50	50	50		1,400		
Baldpate		10	50	1,500	300	300	300		17,220		
Pintail			100	200	200	200	200		6,300		
Green-winged teal				100	100	100	100		2,800		
Blue-winged teal					50	50	50		1,050		
Cinnamon teal											
Shoveler				100	100	100	100		2,800		
Wood											
Redhead					100	100	100		8,100		
Ring-necked				70	70	70	70		1,960		
Canvasback				150	150	150	150		4,200		
Scaup				80	80	80	80		2,240		
Goldeneye				170	100	100	100		3,290		
Bufflehead				50	50	50	50		1,470		
Ruddy											
Other C. Werganser				20	1,000	1,000	1,000		21,140		
Total Ducks		260	2,650	5,000	3,650	3,650	3,650		132,020		
Goat:											
GOAT			50	50 (over)	500	500	500		11,200		

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans	770	110	
Geese	518	20	
Ducks	57,750	5,000	
Coots	11,200	500	

SUMMARY

Principal feeding areas Adjacent Montana River and
Cave Department Cave lands furnished most of the food.

Principal nesting areas at the end of the reporting
period, a pair of C. geese were again using the island.
Other nesting concentrated along S.W. shoreline.

Reported by Frank Conway

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

W A T E R F O W L

REFUGE Pablo

MONTHS OF May TO August, 1966

(1) Species	(2) Weeks of reporting period									
	1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	20	25	130	130	130	130	130	130	130	130
Cackling										
Brant										
White-fronted										
Snow		1								
Blue										
Other	20	26	130	130	130	130	130	130	130	130
Total										
Ducks:										
Mallard	750	500	500	500	1100	1100	1100	1100	1100	1100
Black										
Gadwall	50	50	50	50	70	70	70	70	70	70
Baldpate	300	300	250	250	400	400	400	400	400	400
Pintail	200	200	200	200	320	320	320	320	320	320
Green-winged teal	50				50	50	50	50	50	50
Blue-winged teal	200	300	300	300	500	500	500	500	500	500
Cinnamon teal	50	100	200	200	50	50	50	50	50	50
Shoveler	100	100	300	300	160	160	160	160	160	160
Wood			10	10	10	10	10	10	10	10
Redhead	400	400	400	400	470	470	470	470	470	470
Ring-necked	20	20	20	20	30	30	30	30	30	30
Canvasback	50	50	50	50	80	80	80	80	80	80
Scaup	50	20	30	30						
Goldeneye	100	50	50	50						
Bufflehead	50	10	10	10						
Ruddy		50	30	30						
Other Hooded Merganser			30	30						
Common Merganser	500	500	50	50						
<u>bbbt</u> : Total Ducks	2870	2650	2480	2480	3240	3240	3240	3240	3240	3240
Coot:	500	500	500	500	700	700	700	700	700	700

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Cont. 1

(Rev. March 1953)

WATERFOWL (Continuation Sheet)

REFUGE PabloMONTHS OF May TO August, 19 66

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total	
	11	12	13	14	15	16	17	18			
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada	130	130	130	130	324	550	550	465	24,450	1	5
Cackling											
Brant											
White-fronted									7		
Snow											
Blue											
Other Total	130	130	130	130	324	550	550	465	24,465	1	5
Ducks:											
Mallard	1,100	1,100	1,100	1,100	500	7,000	7,000	8,000	250,250	60	360
Black											
Gadwall	70	70	70	70	50				6,650	4	80
Baldpate	400	400	400	400	350	750	750	6,000	50,650	20	100
Pintail	320	320	320	320	300	2,000	2,000	1,500	70,000	20	120
Green-winged teal	50	50	50	50	80	50	50	200	6,050	30	300
Blue-winged teal	500	500	500	500	500	500	500	300	35,700		
Cinnamon teal	50	50	50	50	20	20	20	20	7,910		
Shoveler	160	160	160	160	350	350	350	350	26,600	15	80
Wood	10	10	10	10	10	10	10	10	1,150		
Redhead	470	470	470	470	1,000	1,000	1,000	2,500	82,600	10	70
Ring-necked	30	30	30	30	20	20	20	50	3,450	2	10
Canvasback	50	50	50	50	50	50	50	100	8,750	5	30
Scaup									920		
Goldeneye									1,750		
Bufflehead									500		
Ruddy						20	20	20	1,150		
Other Hooded Merganser									400		
Common Merganser						40	40	40	8,540		
Total Ducks	3,240	3,240	3,240	3,240	3,370	11,810	11,810	19,290	624,120	186	1,070
Cost	700	700	700	700	750	750	750	750	64,000	50	200

(over)

	(5)	(6)	(7)	SUMMARY
	Total Days Use :	Peak Number :	Total Production	
Swans	-	-	-	Principal feeding areas <u>Nearby farm lands and on aquatic</u>
Geese	24,465	550	5	<u>plants of reservoir.</u>
Ducks	624,120	19,290	1,070	Principal nesting areas <u>Land spits on southwest side of</u>
Coots	84,000	750	200	<u>reservoir.</u>
				Reported by <u>Frank L. Henny</u>

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

W A T E R F O W L

REFUGE Pablo

MONTHS OF September ^{thru} December, 1966

(1) Species	(2) Weeks of reporting period									
	1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling							4	14	26	
Trumpeter										
Geese:										
Canada	879	1,000	1,000	750	250	600	1,100	1,500	1,500	400
Cackling										
Brant										
White-fronted								10		
Snow										
Blue										
OTHER Total Geese	879	1,000	1,000	750	250	600	1,100	1,510	1,500	400
Ducks:										
Mallard	8,000	12,000	12,000	12,000	3,000	4,000	12,000	20,000	20,000	1,200
Black										
Gadwall										
Baldpate	6,000	8,000	8,000	8,000	2,000	3,000	2,000	10,000	500	50
Pintail	1,000	1,500	1,500	1,500	500	500	500	1,000	1,000	50
Green-winged teal	200	200	200	300	300	500	500	1,500	1,500	100
Blue-winged teal	200	200	200	100						
Cinnamon teal	20	20	20	20						
Shoveler	350	350	350	350						
Wood	10									
Redhead	2,500	200	200	200		500	500	500	500	
Ring-necked	4,870	150	150	150		1,000	500	500	200	
Canvasback	200	50	50	50						
Scaup					100	200				
Goldeneye										
Bufflehead										
Ruddy	50									
Other H. Merganser					150	150	150	150	300	300
C. Merganser	40	200	200	200	1,500	1,500	1,500	2,000	2,000	2,000
OTHER Total Ducks	23,440	22,870	22,870	22,870	7,550	11,350	18,650	35,650	26,000	3,700
Coot	750	500	500	500	700	700	700	1,000	1,000	1,000

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Cont. -1

(Rev. March 1953)

WATERFOWL
(Continuation Sheet)REFUGE PabloMONTHS OF September thru December, 19 66

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total
	11	12	13	14	15	16	17	18		
Swans:										
Whistling	30								518	
Trumpeter										
Geese:										
Canada	700	960	1,400	6					84,595	
Cackling										
Brant										
White-fronted										
Snow		2	5						119	
Blue										
XXXX Total Geese	700	962	1,405	6					84,714	
Ducks:										
Mallard	30,000	15,000	1,000						1,051,400	
Black										
Gadwall										
Baldpate	400	400	50						345,800	
Pintail	100	100	100						65,450	
Green-winged teal	1,500	1,000	300						56,700	
Blue-winged teal									4,900	
Cinnamon teal									560	
Shoveler	200	200	50						12,950	
Wood									70	
Redhead	100	100							37,100	
Ring-necked	100	100							54,040	
Canvasback									2,450	
Scaup	50	50							2,800	
Goldeneye	100	100							1,400	
Bufflehead		20							140	
Ruddy									350	
XXXX H. Merganser	100	50	20						9,590	
C. Merganser	1,000	700	100						90,580	
XXXX Total Ducks	33,650	17,820	1,620	0					1,736,280	
Coot	100	100	20	(over)					46,690	

	(5)	(6)	(7)	SUMMARY
	Total Days Use	Peak Number	Total Production	
Swans	518	30		Principal feeding areas <u>Geese</u> did considerable feeding on
Geese	84,714	1,510		exposed shorelines. Ducks fed on adjacent grainfields.
Ducks	1,736,280	35,650		Principal feeding areas <u>Mergansers</u> were attracted by fish
Coots	46,690	1,000		concentrated in shallow water.
				Reported by _____

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

3-1751

Form NR-1A

(Nov. 1945)

MIGRATOR BIRDS

(other than waterfowl)

Refuge PabloMonths of Jan. 1966 April

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
Common Loon	1	4/20	10	4/27	Still Present					
Red-necked Grebe	20	4/20	20	4/20	"	"				
Eared Grebe	2	4/27	2	4/27	"	"				
Western Grebe	10	4/20	20	4/27	"	"				
Double Crested Cormorant	1	4/30	1	4/30	"	"				
Great Blue Heron	Previous Period		10	4/30	"	"				
II. <u>Shorebirds, Gulls and Terns:</u>										
Killdeer	Previous Period		50	4/30	Still Present					
Common Snipe	10	4/15	30	4/15	"	"				
Avocet	10	4/27	10	4/27	"	"				
Long-billed Curlew	2	4/27	2	4/27	"	"				
California & Ringbilled Gulls	Previous Period		50	4/27	"	"				

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u> Mourning dove White-winged dove					
IV. <u>Predaceous Birds:</u> Golden eagle Duck hawk Horned owl Magpie Raven Crow Short-eared Owl Red-tailed Hawk Roughleg Hawk Marsh Hawk..... Pigeon Hawk Cockhawk Bald Eagle	Previous Period 2 10 Previous Period 2 1 Previous Period	h 2 3 25 2 10 2 2 4 2 1 3	1/30 1/30 4/20 4/20 1/30 4/30 1/30 1/15 3/15 4/1 3/15 3/15 1/30	h Still Present 2 Still Present 3	1/30 3/15 1/30
Reported by.....					

INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

3-1751

Form NR-1A

(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)Refuge PabloMonths of May thru August 1966

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
Common Loon	Previous	Period	20	7/1	Still	Present	0	0	0	20
Red-necked Grebe	"	"	50	6/20	"	"	1	20	50	100
Horned Grebe	10	6/15	10	6/15	"	"	0	Unknown	Unknown	20
Eared Grebe	Previous	Period	20	6/15	"	"	1	10	20	40
Western Grebe	"	"	100	6/15	"	"	1	40	120	220
Double-crested Cormorant	"	"	4	6/15	"	"	0	0	0	4
Great Blue Heron	"	"	20	8/1	"	"	0	0	0	20
II. <u>Shorebirds, Gulls and Terns:</u>										
Killdeer	Previous	Period	50	6/1	Still	Present	0	20	70	120
Common Snipe	"	"	30	6/1	"	"	0	10	30	60
Long-billed Curlew	"	"	2	6/1	"	"	0	0	0	2
Greater Yellowlegs	"	"	20	7/4	"	"	0	Unknown	Unknown	20
Lesser Yellowlegs	"	"	30	7/4	"	"	0	"	"	30
Avocet	"	"	10	6/1	"	"	0	4	10	20

(over)

(1)	(2)		(3)	(4)		(5)			(6)	
III. <u>Doves and Pigeons:</u>										
Mourning dove	10	5/15	20	7/10	Still	Present	0	4	10	30
White-winged dove										
IV. <u>Predaceous Birds:</u>										
Golden eagle	0	0	0	0	0	0	0	0	0	0
Duck hawk	Previous	Period	2	8/10	Still	Present	0	1	2	4
Horned owl	"	"	2	7/20	"	"	0	1	4	6
Magpie	"	"	25	7/20	"	"	0	10	40	65
Raven	"	"	2	7/20	"	"	0	0	0	2
Crow	"	"	20	6/15	"	"	0	10	40	60
Red-tailed Hawk	"	"	2	6/15	"	"	0	1	2	4
Marsh Hawk	"	"	4	6/15	"	"	0	2	6	10
Osprey	1	7/1	1	7/1	1	7/1	0	0	0	1
Sparrow Hawk	Previous	Period	4	7/10	Still	Present	0	1	2	6
Short-eared Owl	"	"	2	7/20	"	"	0	2	4	6
Reported by..... Frank L. Kenney										

INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

3-1751

Form NR-1A

(Nov. 1945)

MIGRATORY BIRDS

(other than waterfowl)

thru

Refuge... PabloMonths of SeptembertoDecember1956

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
Common Loon	previous period		20	9/15	2	11/15				20
Rednecked Grebe	previous period		100	9/15	50	9/30				100
Horned Grebe	"	"	20	9/15	20	9/30				20
Hared Grebe	"	"	40	9/15	20	9/30				40
Double crested cormorant	"	"	4	9/15	4	10/15				4
Great Blue Heron	"	"	30	9/15	still present					30
Sandhill Crane	1	11/1	1	11/1	1	11/1				1
II. <u>Shorebirds, Gulls and Terns:</u>										
Killdeer	previous period		120	9/15	still present					120
Common Snipe	"	"	60	9/15	60	10/1				60
Greeter Yellowlegs	"	"	20	9/15	20	10/15				20
Lesser Yellowlegs	"	"	30	9/15	30	10/15				30
Avocet	"	"	20	9/15	20	10/15				20
California Gull	"	"	100	10/15	still present					100
Ring-billed Gull	"	"	2,000	10/15	still present					2,000
Forrester's Tern	"	"	100	9/15	20	10/1				100
Common Tern	"	"	100	9/15 (over)	20	10/1				100

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u> Mourning dove White-winged dove	previous period	30	9/15	30	10/1
IV. <u>Predaceous Birds:</u> Golden eagle Duck hawk Horned owl Magpie Raven Crow Snowy Owl Short-eared Owl Red-tailed Hawk Marsh Hawk Sparrow Hawk	3 previous period previous period " " " 20 5 previous period " "	10/15 4 4 65 2 60 20 5 4 4 6	12/15 9/15 9/15 9/15 9/15 10/1 11/25 10/15 9/15 9/15 9/15	still present still present still present still present still present 10 still present still present 1 still present 6	10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15 10/15
				Reported by.....	

INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
 II. Shorebirds, Gulls and Terns (Charadriiformes)
 III. Doves and Pigeons (Columbiformes)
 IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

3-1750b
Form NR-1B
(Rev. Nov. 1957)

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE

WATERFOWL UTILIZATION OF REFUGE HABITAT

Refuge Pablo

For 12-month period ending August 31, 1966

Reported by Frank L. Kenney

Title Refuge Manager

(1)	(2)		(3)	(4)	(5)	
Area or Unit Designation	Habitat Type	Acreage	Use-days	Breeding Population	Production	
	Crops	175	Ducks	3,588,060	400	1,070
	Upland	495	Geese	94,450	2	5
	Marsh	1,292	Swans	2,023	-	-
	Water	580	Coots	198,100	100	200
	Total	2,542	Total	3,882,633	502	1,275

	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			

	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			

	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			

	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			

	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			

(over)

INSTRUCTIONS

All tabulated information should be based on the best available techniques for obtaining these data. Estimates having no foundation in fact must be omitted. Refuge grand totals for all categories should be provided in the spaces below the last unit tabulation. Additional forms should be used if the number of units reported upon exceeds the capacity of one page. This report embraces the preceding 12-month period, NOT the fiscal or calendar year, and is submitted annually with the May-August Narrative Report.

- (1) **Area or Unit:** A geographical unit which, because of size, terrain characteristics, habitat type and current or anticipated management practices, may be considered an entity apart from other areas in the refuge census pattern. The combined estimated acreages of all units should equal the total refuge area. A detailed map and accompanying verbal description of the habitat types of each unit should be forwarded with the initial report for each refuge, and thereafter need only be submitted to report changes in unit boundaries or their descriptions.
- (2) **Habitat:** Crops include all cultivated croplands such as cereals and green forage, planted food patches and agricultural row crops; upland is all uncultivated terrain lying above the plant communities requiring seasonal submergence or a completely saturated soil condition a part of each year, and includes lands whose temporary flooding facilitates use of non-aquatic type foods; marsh extends from the upland community to, but not including, the water type and consists of the relatively stable marginal or shallow-growing emergent vegetation type, including wet meadow and deep marsh; and in the water category are all other water areas inundated most or all of the growing season and extending from the deeper edge of the marsh zone to strictly open-water, embracing such habitat as shallow playa lakes, deep lakes and reservoirs, true shrub and tree swamps, open flowing water and maritime bays, sounds and estuaries. Acreage estimates for all four types should be computed and kept as accurate as possible through reference to available maps supplemented by periodic field observations. The sum of these estimates should equal the area of the entire unit.
- (3) **Use-days:** Use-days is computed by multiplying weekly waterfowl population figures by seven, and should agree with information reported on Form NR-1.
- (4) **Breeding Population:** An estimate of the total breeding population of each category of birds for each area or unit.
- (5) **Production:** Estimated total number of young raised to flight age.

UPLAND GAME BIRDS

1613

Refuge Pablo

Months of January to April, 19 46

(1) Species	(2) Density	(3) Young Produced	(4) Sex Ratio	(5) Removals	(6) Total	(7) Remarks	
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd. Estimated Total	Percentage	Hunting For Re- stocking For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked Pheasant	Croplands.....175 Haylands..... 15 Grasslands...480 <u>670</u>	4.4		1:2.5		150	The concentration is on the west side near the grain fields and where excellent cover is available.

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

1613

Refuge Pablo

Months of May thru August, 19 66

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specificoally requested. List introductions here.
Ring-necked Pheasant	Croplands 175 Haylands 15 Grasslands 480 670	2.2	20	100	1:2.5	0	0	0	300	

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

UPLAND GAME BIRDS

Refuge Pablo Months of September thru December, 19 66

(1) Species	(2) Density	(3) Young Produced	(4) Sex Ratio	(5) Removals	(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd. Estimated Total	Hunting For Re- stocking For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked pheasant	Croplands 175 haylands 15 grassland 480 670	2.2	1:2.5		300	100 farm-raised pheasants were released near the refuge in October by Montana Fish and Game department.

* Only columns applicable to the period covered should be used.

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- | (1) SPECIES: | Use correct common name. | (2) DENSITY: | (3) YOUNG PRODUCED: | (4) SEX RATIO: | (5) REMOVALS: | (6) TOTAL: | (7) REMARKS: |
|--------------|--|---------------------|---|----------------|---|---------------|--|
| (1) SPECIES: | Use correct common name. | (2) DENSITY: | (3) YOUNG PRODUCED: | (4) SEX RATIO: | (5) REMOVALS: | (6) TOTAL: | (7) REMARKS: |
| (2) DENSITY: | Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks. | (3) YOUNG PRODUCED: | Estimated number of young produced, based upon observations and actual counts in representative breeding habitat. | (4) SEX RATIO: | This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available. | (5) REMOVALS: | Indicate total number in each category removed during the report period. |
| (6) TOTAL: | Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons. | (7) REMARKS: | Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested. | | | | |

* Only columns applicable to the period covered should be used.

3-1754
Form No. 4
(June 1945)

SMALL MAMMALS

Refuge Pella

Year ending April 30, 66

(1) Species	(2) Density	(3) Removals					(4) Disposition of Furs					(5) Total Popula- tion		
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re- stocking	For Re- search	Share Trapping			Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	
								Permit Number	Trappers Share	Refuge share				
Meadow Mouse	Grassland, Crop and hayland...670a	Unknown			None						None			Very High
Deer Mouse	"	"			"						"			Low
Striped Skunk	"	"			"						"			Moderate
Badger	"	"			"						"			Moderate
Muskrat	Water and Marsh1807a	12		60				BYA	60	None	None	None	None	150 est
Mink	"	Unknown		10				BYA	10	"	"	"	"	Moderate
Weasel	"	"			None						None			High
Beaver	Water and Marsh.....1807a	150			None			BYA		None				2 lodges h
* List removals by Predator Animal Hunter														

* List removals by Predator Animal Hunter

REMARKS:

The west side of the refuge is virtually ungrazed leaving a dead mat of vegetation that is very conducive to breeding large numbers of meadow mice. This situation will be tempered only when the the area is made accessable to cattle according to refuge plans. Of some importance is the fact that owls and hawks are promiscuously shot along the refuge boundaries.

Reported by Orin L. Berry

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

- (1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)
 - (2) DENSITY: Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
 - (3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed.
 - (4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.
 - (5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.
- REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

3-1755
Form NR-5
(April 1946)

DISEASE

Refuge.....Pablo.....Year 19~~4~~66

Botulism

Lead Poisoning or other Disease

Period of outbreak.....			Kind of disease.....		
Period of heaviest losses.....			Species affected.....		
Losses:			Number Affected		
	Actual Count	Estimated	Species	Actual Count	Estimated
(a) Waterfowl
(b) Shorebirds
(c) Other
Number Hospitalized	No. Recovered	% Recovered	Number Recovered.....		
(a) Waterfowl	Number lost.....		
(b) Shorebirds	Source of infection.....		
(c) Other	Water conditions.....		
Areas affected (location and approximate acreage).....			Food conditions.....		
Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.).....			Remarks.....		
Conditions of vegetation and invertebrate life.....			Remarks.....		
Remarks.....			No disease to report.		

PUBLIC RELATIONS

(See Instructions on Reverse Side)

Refuge Pablo National Wildlife RefugeCalendar Year 1966

1. Visits

a. Hunting 0 b. Fishing 2,500 c. Miscellaneous 1,000 d. TOTAL VISITS 3,500

1a. Hunting (on refuge lands)

None

TYPE	HUNTERS	ACRES	MANAGED BY
Waterfowl			
Upland Game			
Big Game			
Other			

Number of permanent blinds _____

Man-days of bow hunting included above _____

Estimated man-days of hunting on lands adjacent to

refuge 1,000

1b. Fishing (area open to fishing on refuge lands)

TYPE OF AREA	ACRES	MILES
Ponds or Lakes		
Streams and Shores		<u>4</u>

1c. Miscellaneous Visits

Recreation 750 Official 150Economic Use 100 Industrial _____

2. Refuge Participation (groups)

On Refuge Off Refuge

TYPE OF ORGANIZATION	NO. OF GROUPS	NUMBER IN GROUPS	NO. OF GROUPS	NUMBER IN GROUPS
Sportsmen Clubs				
Bird and Garden Clubs				
Schools	<u>1</u>	<u>12</u>		
Service Clubs				
Youth Groups				
Professional-Scientific				
Religious Groups				
State or Federal Govt.				
Other				

3. Other Activities

TYPE	NUMBER	TYPE	NUMBER
Press Releases		Radio Presentations	
Newspapers (P.R.'s sent to)		Exhibits	
TV Presentations		Est. Exhibit Viewers	

INSTRUCTIONS

Item 1: Total of a, b, and c, equal d.

"Visit" - definition. Any person who is on refuge lands or waters during a day or part thereof for the purpose of: hunting, fishing, bird-watching, recreation, business or economic use, official visit, or similar interest. INCLUDE - those who stop within the refuge while traveling on a public highway because of an interest in the area. EXCLUDE - persons engaged in oil or other industry not directly related to the refuge, persons using refuge as most direct route or principal avenue of traffic, and those boating on navigable rivers or the Intercoastal Canal, unless they stop to observe wildlife on the refuge.

Computing visits. Where actual counts are impractical, "sampling" is used with midweek and weekend samples varied by season or weather. A conversion factor of 3.5 (of passengers per car) is used when accurate figures are not available. Each refuge will develop a conversion factor for boats based on range of usage. Count a camper once for each 24-hour period or fraction thereof.

Item 1a: Acres - of refuge open for each type of hunting.

Managed hunts require check in and out of hunters, issuance of permits, or assignment of blinds.

Other - INCLUDE crow, fox, and similar hunting.

Lands adjacent to refuge. Normally considered within 1 mile or less of boundary, unless established sampling procedures cover a wider area. For big game hunting, the distance may be greater.

Item 1b: Acres of streams open to fishing, if practical; otherwise just miles open. Information on "shores" is primarily for coastal fishing.

Item 1c: Recreation. INCLUDE photography, observing wildlife, picnicking, swimming, boating, camping, visitor center use, tours, etc. TOTAL Recreation, Official, and Economic Use visits under Item 1.

Industrial. INCLUDE persons engaged in industry, i.e., oil industry or factories. EXCLUDE these from Item 1.

Item 2: INCLUDE the "On Refuge" groups in Items 1c and 1. In "Off Refuge" column include only those group meetings in which refuge employees actually participate. EXCLUDE these from Items 1c and 1.

Item 3: Exhibits - INCLUDE displays, fairs, parades, and exhibits OFF the refuge; EXCLUDE those ON.

3-1757
Form NR-7
(Rev. June 1960)

NONAGRICULTURAL COLLECTION, RECEIPTS, AND PLANTINGS

(1)

Refuge Pablo Year 1966

Species	Collections and Receipts (Seeds, rootstocks, trees, shrubs)						Plantings (Marsh - Aquatic - Upland)						
	Amount (Lbs., bus., etc.)	(2) C or R	Date	Method or Source	Cost	(3) Total Amount on Hand	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount and Nature of Propagules	Date	Survival	Cause of Loss

- (1) Report agronomic farm crops on Form NR-8
(2) C = Collections and R = Receipts
(3) Use "S" to denote surplus

Total acreage planted:

Marsh and aquatic _____
Hedgerows, cover patches _____
Food strips, food patches _____
Forest plantings _____

Remarks: No collections, receipts or plantings.

3-1758
Form NR-6
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Pablo County Lake State Montana

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water- fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./Tons	Acres	Bu./Tons			
All permits are issued and all cash receipts are received by the Bureau of Indian Affairs, Dixon, Montana									
								Fallow Ag. Land	

No. of Permittees: Agricultural Operations _____ Haying Operations _____ Grazing Operations _____

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
				1. Cattle	70	250		480
				2. Other				
				1. Total Refuge Acreage Under Cultivation				
Hay - Wild				2. Acreage Cultivated as Service Operation				

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

ANNUAL REPORT OF PERSTICIDE APPLICATION

Proposal Number

Reporting Year

1966

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
7/5/66	Canada Thistle	S.E. Unit	23	2-4D Amine	16 gallons	30:1	water	tank
7/16/66	" "	South Unit	27	"	16 "	"	2 lbs. acid	
7/6/66	" "	" "	21	"	13 "	"	equiva-	
7/8/66	" "	N.E. Unit	20	"	12 "	"	lent per	
7/11/66	" "	North Unit	22	"	13½ "	"	acre	
7/12/66	" "	" "	18	"	11 "	"		
7/13/66	" "	West Unit	21	"	13 "	"		
7/14/66	" "	" "	28	"	16½ "	"		
		Total	180					

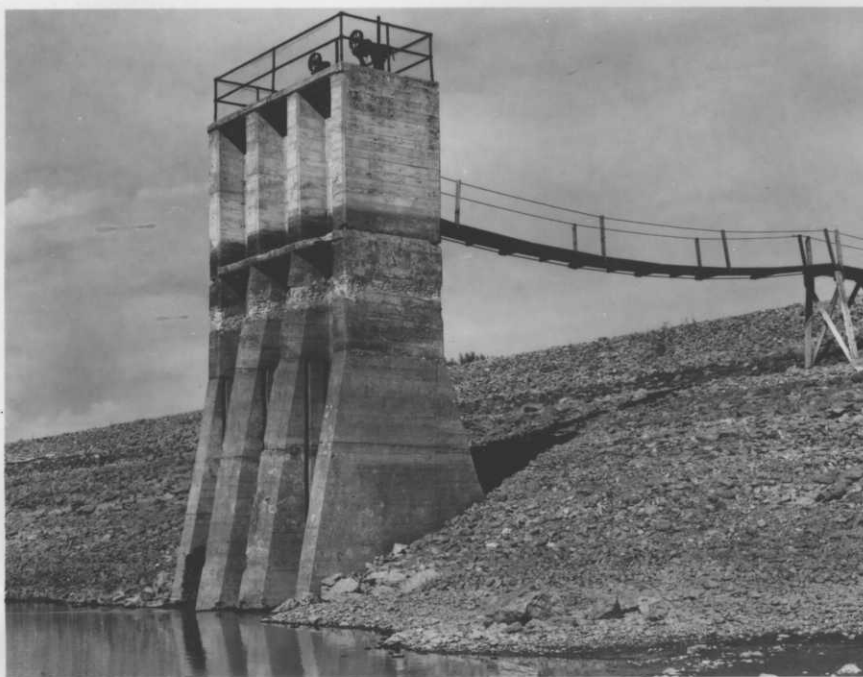
10. Summary of results (continue on reverse side, if necessary) Of the areas treated, the kill of Canada thistle was at least 90%. However, due to extremely high reservoir levels, it was impossible to spray some 175 acres of thistle infested land. At the end of 1966, Pablo reservoir is very low. If this condition should extend into the summer, the infested areas (mostly in the west unit) could be easily reached with a mobile type equipment. These areas should be given priority over the areas treated in 1966, of course.

Canad a thistle

Cost per acre	\$1.79	\$3.09
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From such checking stations as this one, at the north entrance of the refuge, and another near the south boundary, the Montana Fish and Game department manages its public hunting areas. Valuable records on the kill, species and weight of waterfowl are collected at these points. The 350 acres of state-owned farmland, which is share-cropped so that one-third of the mature grain is left standing, is a major asset to Pablo as a refuge.



The reservoir is supplied by a forty-mile-long canal that flows northward from Tabor reservoir along the foot of the Mission mountains tapping Mission and McDonald Lake reservoirs on its way. During the fall of 1966, these sources were insufficient, and the entire supply was utilized. In emergencies, water can be pumped from Kerr dam at the rate of \$5.00 per acre foot, a prospect the Indian irrigation service is now contemplating, unless an unusually early spring runoff occurs. Above is the outlet structure as it appeared at the end of the year.

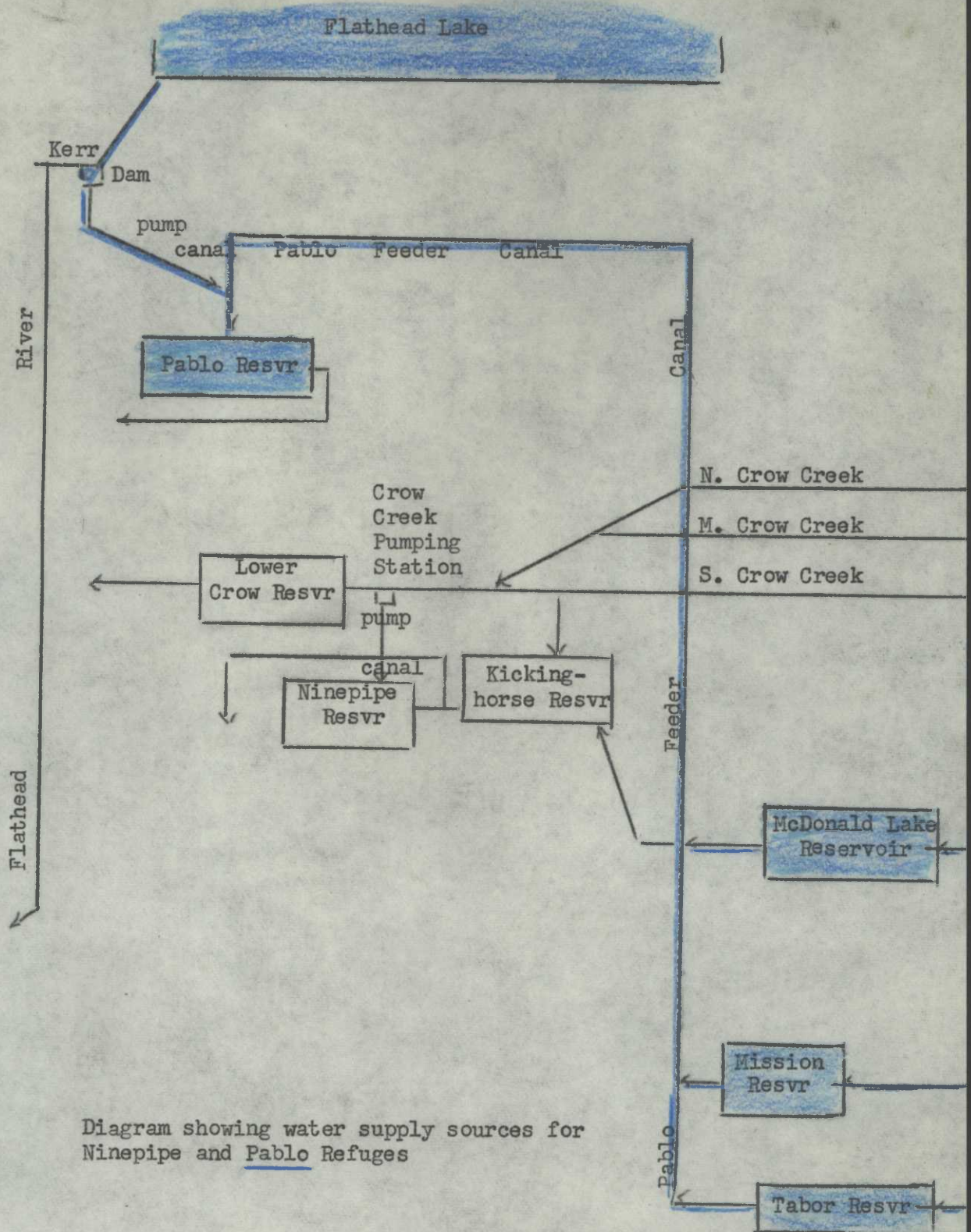
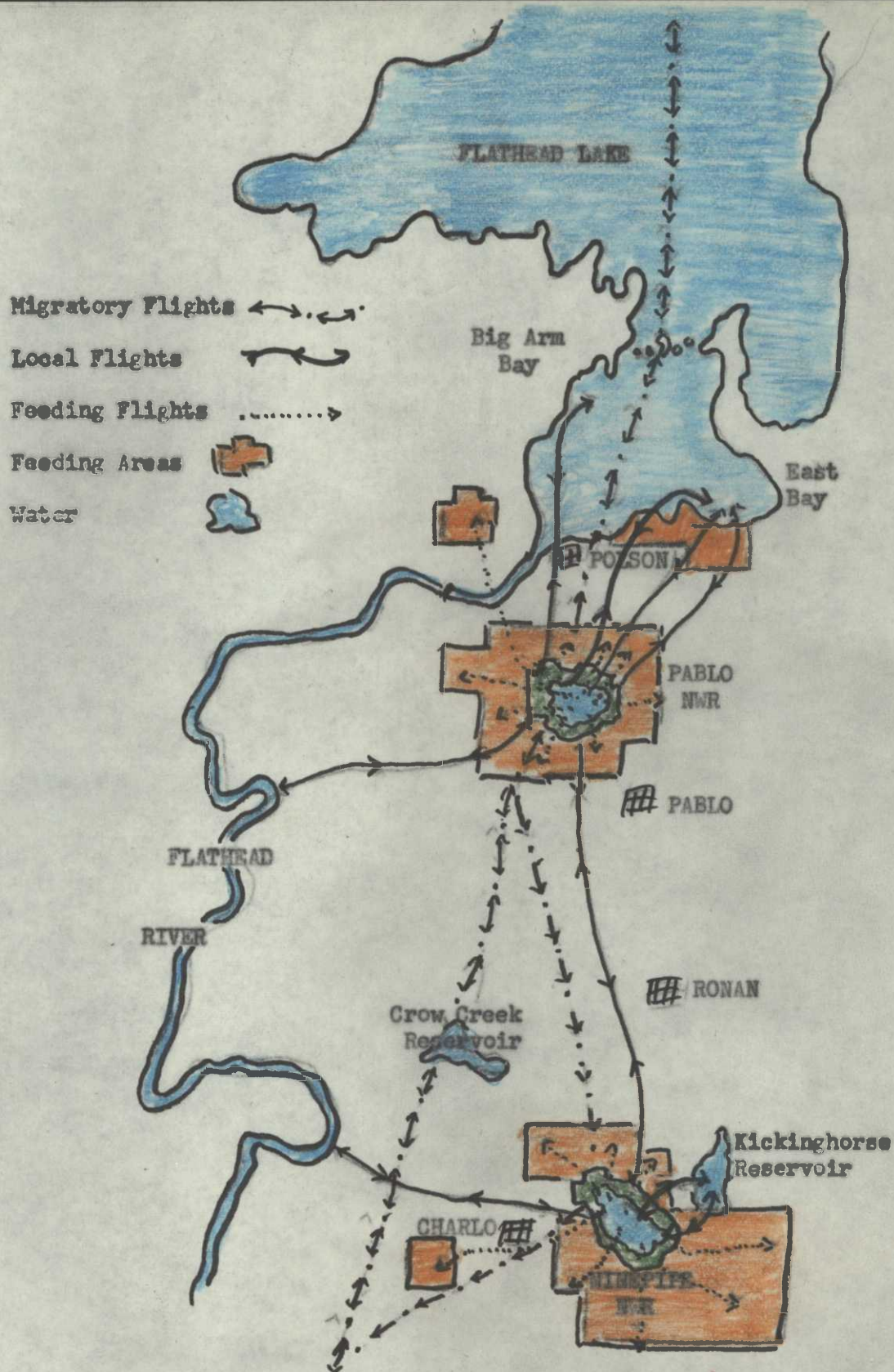


Diagram showing water supply sources for
Ninepipe and Pablo Refuges



About 4 miles of shallow, terminal morain separate Pablo from Flathead lake, a factor having strong influence on waterfowl use of the refuge. When full, Pablo furnishes about 1800 surfade acres. But it is subject to late summer draw-downs and winter freeze-ups. At such times, the waterfowl flee to "the largest, natural, freshwater lake west of the Mississippi."



MAP OF THE FLATHEAD VALLEY SHOWING THE GENERAL MIGRATORY AND LOCAL FEEDING AND RESTING PATTERNS OF MOVEMENT OF CANADA GEESE. (From Mary Barraclough's thesis Biology of Canada Geese in the Flathead Valley of Montana plus more recent observations.)



Southwesterly view shows Pablo and some of the adjacent grainfields so important to its existence. Unlike Nimpipi, there are no natural potholes, only the old catch-basins constructed 30 years ago at the upper ends of a few of the inlets which still retain enough water for limited waterfowl use after the reservoir is drained. Better distribution of cattle grazing will be accomplished when one interior fence, upper right side of the reservoir, is moved to the indicated position allowing passage around one deep inlet into the west pasture.